



west virginia department of environmental protection

Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone (304) 926-0475 • FAX: (304) 926-0479

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-2854
Plant ID No.: 077-00088
Applicant: Fayette Coal & Coke, Inc.
Facility Name: Newburg Facility
Location: Newburg, Preston County
NAICS Code: 212311
Application Type: Construction (After-the-Fact)
Received Date: September 1, 2010
Engineer Assigned: Mindy Hendrickson
Fee Amount: \$2,000.00
Date Received: September 9, 2010
Complete Date: February 15, 2011
Applicant Ad Date: January 12, 2011
Newspaper: *Dominion Post*
UTM's: Easting: 595.333 km Northing: 4371.686 km Zone: 17
Description: After-the-fact permit for a crushing and screening operation that consists of one (1) crusher, two (2) screens, three (3) open stockpiles, one (1) diesel engine, and one (1) storage tank.

DESCRIPTION OF PROCESS

The quarry site is a former coal mine operated by Sharon Coal Company under WVDEP Mining and Reclamation permit S101488. The Article 3/SMCRA permit was transferred to Bullskin Stone and Lime Company on 09/15/09 and approved contract operator of Fayette Coal & Coke, Inc. As of 02/23/10.

The non-continuous, non-metallic minerals processing facility is powered by a 200 hp Deutz BF4M2012 diesel engine. Sandstone is obtained as overburden from the coal mining operations and handled by front end loader to the jaw crusher, which is rated at 300 tons per hour. Sandstone is then conveyed to the screen for sizing and distribution to the associated stockpile areas (1½", ¾", and sand) for commercial sale. The front end loader is used to move product from the stockpile areas to trucks for shipment to the mine property.

Fayette Coal & Coke, Inc. plans to utilize the following equipment at the Newburg site:

Table 1: Equipment Summary

Equipment ID No.	Emission Unit Description	Year Installed	Design Capacity	
			Tons / Hour	Tons / Year ²
JC1	Jaw Crusher – Metso/Nordberg LT-105	2004	300	25,000
S1	Screen -- Spyder/Primary	2009	300	25,000
S2	Screen -- Spyder/Secondary	2009	180	15,000
Engine				
E1	Diesel Engine -- Deutz BF4M2012	2007	300 hp	
Tank				
T1	Storage Tank -- diesel fuel	2007	100 gallons	50,000 gal / yr
Stockpiles	Description	Max. Base Area (sq. ft.)	Max. Capacity Tons	Max Capacity Tons / Year
	OS1 Open Stockpile – 1½”	1,600	10,000	10,000
	OS2 Open Stockpile – ¾”	1,600	10,000	10,000
	OS3 Open Stockpile – sand	1,600	5,000	5,000

SITE INSPECTION

Brian Tephabock discovered the facility while enroute to another site inspection in September 2010. He stopped at the site and told the company the steps necessary to get a construction permit to operate. His visit and notification is what prompted the company to submit an application.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Tri-axle trucks are used for transport with the third axle raised removing contact of one set of tires with the road to help minimize dust. A water truck will also be utilized to minimize haulroad dust emissions. Dugan Associates performed emissions calculations using AP-42 emission factors and manufacturer data. Calculated emissions are shown in the two (2) following tables:

Table 2: Hourly emissions in pounds per hour:

Emission Source	PM	PM ₁₀	NOx	CO	VOC	SO ₂
Stockpiles	0.03	0.01				
Haulroads	71.82	21.20				
Equipment	15.60	5.52				
Transfer Points	3.66	1.73				
Diesel Engine	0.05	0.05	3.20	0.40	0.75	0.62
TOTAL	91.16	28.51	3.20	0.40	0.75	0.62

Table 3: Annual emissions in tons per year:

Emission Source	PM	PM ₁₀	NO _x	CO	VOC	SO ₂
Stockpiles	0.13	0.06				
Haulroads	2.99	0.88				
Equipment	0.65	0.23				
Transfer Points	0.15	0.07				
Diesel Engine	0.04	0.04	2.53	0.32	0.60	0.50
TOTAL	3.96	1.28	2.53	0.32	0.60	0.50

REGULATORY APPLICABILITY

The facility, as proposed to be permitted under this application R13-2854, is subject to the following state rules and federal regulations:

WV STATE RULES

45CSR7 To Prevent and Control Particulate Air Pollution from Manufacturing Process Operations

The facility is a manufacturing process as defined in section 2.20 and has the potential to emit particulate matter during routine process operations and therefore 45CSR7 is applicable to the facility. The proposed facility is a type 'a' emission source defined by 45CSR7-2.39. Based on the maximum throughput for the proposed facility of 300 tons per hour or 25,000 lbs/hr, the maximum allowable total stack emission rate specified in Table 45-7a is 50 lbs/hr. The proposed facility emissions (minus the fugitives emissions from haulroads and stockpiles) is 19.31 lbs/hr of PM and 7.3 lbs/hr of PM₁₀ and is well below this limit, indicating compliance. The facility will perform visible emission observations, record the results, and report any problems found.

45CSR13 Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits, and Procedures for Evaluation

The facility construction resulted in the existence of a new stationary source having the potential to emit in excess of 6 lb/hr and 10 tons/yr of criteria pollutants, and as such, a permit is required. The total facility controlled emissions: 28.51 lbs/hr and 1.28 TPY of PM₁₀, 91.16 lbs/hr and 3.96 TPY of PM, 3.20 lbs/hr and 2.53 TPY of NO_x, 0.40 lbs/hr and 0.32 TPY of CO, 0.75 lbs/hr and 0.60 TPY of VOC, and 0.62 lbs/hr and 0.50 TPY of SO₂.

As required in section 12.1, the facility paid a permit application fee of \$2,000, which includes an NSPS fee of \$1,000.

- 45CSR16 Standards of Performance for New Stationary Sources Pursuant to 40 CFR Part 60
- The facility is subject to the NSPS 40cfr60 Subpart IIII and 40cfr60 Subpart OOO, making it subject to 45CSR16.
- 45CSR30 Requirements for Operating Permits
- Facility is a non-major Title V source because of the NSPS requirements of 40cfr60 Subpart IIII and 40cfr60 Subpart OOO.

FEDERAL REGULATIONS

- 40CFR60
Supbart OOO Standards of Performance for Nonmetallic Mineral Processing Plants
- The facility is subject to 40CFR60 Subpart OOO because it is a nonmetallic mineral processing plant as defined in §60.671 and commenced construction after August 31, 1983. The facility must meet stack emission limits set forth in Table 2 of this subpart and demonstrate compliance by performing tests according to §60.8 and §60.675. The facility must meet fugitive emission limits set forth in Table 3 of this subpart and perform initial performance tests according to §60.11 and §60.675. The facility must also perform monthly inspections of wet suppression controls and record inspection results.
- 40CFR60
Supbart IIII Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
- The facility is subject to 40CFR60 Subpart IIII because the stationary compression ignition (CI) internal combustion engines (ICE) (to be installed under this permit) will commence construction after July 11, 2005. The engine is a 2007 model.
- The Fayette Coal & Coke, Inc. facility is subject to 40 CFR 80 because Section 60.4207 states that owners and operators of stationary CI ICE subject to Subpart IIII that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(a) beginning October 1, 2007 [§60.4207.a.]
- The facility will record fuel usage and hours of operation for the 2007 Deutz BF4M2012 engine.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

Acetaldehyde:

Acetaldehyde is mainly used as an intermediate in the synthesis of other chemicals. It is ubiquitous in the environment and may be formed in the body from the breakdown of ethanol. Acute (short-term) exposure to acetaldehyde results in effects including irritation of the eyes, skin, and respiratory tract. Symptoms of chronic (long-term) intoxication of acetaldehyde resemble those of alcoholism. Acetaldehyde is considered a probable human carcinogen (Group B2) based on inadequate human cancer studies and animal studies that have shown nasal tumors in rats and laryngeal tumors in hamsters.

Acrolein

Acrolein is primarily used as an intermediate in the synthesis of acrylic acid and as a biocide. It may be formed from the breakdown of certain pollutants in outdoor air or from the burning of organic matter including tobacco, or fuels such as gasoline or oil. It is toxic to humans following inhalation, oral or dermal exposures. Acute (short-term) inhalation exposure may result in upper respiratory tract irritation and congestion. No information is available on its reproductive, developmental, or carcinogenic effects in humans, and the existing animal cancer data are considered inadequate to make a determination that acrolein is carcinogenic to humans.

Benzene:

Benzene is found in the air from emissions from burning coal and oil, gasoline service stations, and motor vehicle exhaust. Acute (short-term) inhalation exposure of humans to benzene may cause drowsiness, dizziness, headaches, as well as eye, skin, and respiratory tract irritation, and, at high levels, unconsciousness. Chronic (long-term) inhalation exposure has caused various disorders in the blood, including reduced numbers of red blood cells and aplastic anemia, in occupational settings. Reproductive effects have been reported for women exposed by inhalation to high levels, and adverse effects on the developing fetus have been observed in animal tests. Increased incidence of leukemia (cancer of the tissues that form white blood cells) have been observed in humans occupationally exposed to benzene. EPA has classified benzene as a Group A, human carcinogen.

Formaldehyde:

Formaldehyde is used mainly to produce resins used in particle board products and as an intermediate in the synthesis of other chemicals. Exposure to formaldehyde may occur by breathing contaminated indoor air, tobacco smoke, or ambient urban air. Acute (short-term) and chronic (long-term) inhalation exposure to formaldehyde in humans can result in respiratory symptoms, and eye, nose, and throat irritation. Limited human studies have reported an association between formaldehyde exposure and lung and nasopharyngeal cancer. Animal inhalation studies have reported an increased incidence of nasal squamous cell cancer. EPA considers formaldehyde a probable human carcinogen (Group B1).

Naphthalene:

Naphthalene is used in the production of phthalic anhydride; it is also used in mothballs. Acute (short-term) exposure of humans to naphthalene by inhalation, ingestion, and dermal contact is associated with hemolytic anemia, damage to the liver, and neurological damage. Cataracts have also been reported in workers acutely exposed to naphthalene by inhalation and ingestion. Chronic (long-term) exposure of workers and rodents to naphthalene has been reported to cause cataracts and damage to the retina. Hemolytic anemia has been reported in infants born to mothers who "sniffed" and ingested naphthalene (as mothballs) during pregnancy. Available data are inadequate to establish a causal relationship between exposure to naphthalene and cancer in humans. EPA has classified naphthalene as a Group C, possible human carcinogen.

Toluene:

The acute toxicity of toluene is low. Toluene may cause eye, skin, and respiratory tract irritation. Short-term exposure to high concentrations of toluene (e.g., 600 ppm) may produce fatigue, dizziness, headaches, loss of coordination, nausea, and stupor; 10,000 ppm may cause death from respiratory failure. Ingestion of toluene may cause nausea and vomiting and central nervous system depression. Contact of liquid toluene with the eyes causes temporary irritation. Toluene is a skin irritant and may cause redness and pain when trapped beneath clothing or shoes; prolonged or repeated contact with toluene may result in dry and cracked skin. Because of its odor and irritant effects, toluene is regarded as having good warning properties. The chronic effects of exposure to toluene are much less severe than those of benzene. No carcinogenic effects were reported in animal studies. Equivocal results were obtained in studies to determine developmental effects in animals. Toluene was not observed to be mutagenic in standard studies.

Xylene:

Commercial or mixed xylene usually contains about 40-65% m-xylene and up to 20% each of o-xylene and p-xylene and ethyl benzene. Xylenes are released into the atmosphere as fugitive emissions from industrial sources, from auto exhaust, and through volatilization from their use as solvents. Acute (short-term) inhalation exposure to mixed xylenes in humans results in irritation of the eyes, nose, and throat, gastrointestinal effects, eye irritation, and neurological effects. Chronic (long-term) inhalation exposure of humans to mixed xylenes results primarily in central nervous system (CNS) effects, such as headache, dizziness, fatigue, tremors, and incoordination; respiratory, cardiovascular, and kidney effects have also been reported. EPA has classified mixed xylenes as a Group D, not classifiable as to human carcinogenicity.

MONITORING OF OPERATIONS

The facility will be required to monitor material throughput, facility operation hours, diesel fuel usage, engine operation hours, water usage, and visible emissions. The monitoring requirements in permit 13-2854 are:

- 4.2.1. For the purpose of determining compliance with the maximum throughput limits set forth in 4.1.1, the permittee shall maintain certified monthly and annual records of the amount of sandstone processed, utilizing the form identified as Appendix A. Such records shall be retained onsite by the permittee for at least five (5) years. Certified records shall be made available to the Director or his duly authorized representative upon request.
- 4.2.2. Engine monitoring requirements
 - a. For the purpose of determining compliance with the maximum fuel usage limits set forth in 4.1.5., the permittee shall maintain monthly diesel fuel records for the 300hp Deutz Engine (E1) utilizing the form identified as Appendix B.
 - b. If you are a permittee of a stationary CI internal combustion engine equipped with a diesel particulate filter to comply with the emission standards in §60.4204, the diesel particulate filter must be installed with a backpressure monitor that notifies the permittee when the high backpressure limit of the engine is approached.
[40CFR §60.4209b]

- 4.2.3. For the purposes of determining compliance with water control usage set forth in 4.1.4, the permittee shall monitor water activity and maintain certified daily records, utilizing the forms identified as Appendix C. Such records shall be retained onsite by the permittee for at least five (5) years. Certified records shall be made available to the Director or his duly authorized representative upon request.

The owner or operator of any affected facility for which construction, modification, or reconstruction commenced on or after April 22, 2008, that uses wet suppression to control emissions from the affected facility must perform monthly periodic inspections to check that water is flowing to discharge spray nozzles in the wet suppression system. The owner or operator must initiate corrective action within 24 hours and complete corrective action as expediently as practical if the owner or operator finds that water is not flowing properly during an inspection of the water spray nozzles. The owner or operator must record each inspection of the water spray nozzles, including the date of each inspection and any corrective actions taken, in the logbook required under §60.676(b).

[40 CFR §60.674b]

- 4.2.4. For the purpose of determining compliance with the opacity limits of 40 CFR 60 Suppart OOO and 45 CSR 7, the permittee shall conduct visible emission checks and/or opacity monitoring and recordkeeping for all emission sources subject to an opacity limit.
- a. The visible emission check shall determine the presence or absence of visible emissions. At a minimum, the observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training may be obtained from written materials found in the References 1 and 2 from 40CFR Part 60, Appendix A, Method 22 or from the lecture portion of the 40CFR Part 60, Appendix A, Method 9 certification course.
 - b. Visible emission checks shall be conducted at least once per calendar month with a maximum of forty-five (45) days between consecutive readings. These checks shall be performed at each source (stack, transfer point, fugitive emission source, etc.) for a sufficient time interval, but no less than one (1) minute, to determine if any visible emissions are present. Visible emission checks shall be performed during periods of normal facility operation and appropriate weather conditions.
 - c. If visible emissions are present at a source(s) for three (3) consecutive monthly checks, the permittee shall conduct an opacity reading at that source(s) using the procedures and requirements of Method 9 or 45CSR§7A as soon as practicable, but within seventy-two (72) hours of the final visual emission check. A Method 9 or 45CSR§7A observation at a source(s) restarts the count of the number of consecutive readings with the presence of visible emissions.

RECOMMENDATION TO DIRECTOR

The information contained in the permit application R13-2854 indicates that compliance with all applicable state rules and federal regulations should be achieved when all proposed control methods are in operation. Therefore, the granting of a permit to Fayette Coal & Coke, Inc. for the operation of a crushing / screening facility located in Newburg, Preston County, West Virginia, is hereby recommended.

Mindy Hendrickson
Permit Writer

June 2, 2011

Date